

SOI STRUCTURE AND METHOD OF PRODUCING SAME

ABSTRACT OF THE DISCLOSURE

5 A Silicon On Insulator (SOI) structure and method of producing an SOI structure that
can prevent a short circuit between a Local Inter-Connect (LIC) and a well in the SOI
structure is disclosed. The SOI structure includes a BOX layer of insulation material formed
on a silicon substrate; an SOI layer formed on the BOX layer; a well formed within a device
isolation area of the SOI layer such that its lower surface is in contact with the BOX layer; a
10 field oxide film formed on a surface side within the well; a gate line formed across an active
area on the SOI layer and a portion on the field oxide film; an N+ type source/drain area
formed within the active area along both sides of the gate line to contact its lower surface
with the BOX layer; an insulation layer formed on such resultant structure; and an opening
part that is formed within the insulation layer. The opening part can be opened in a Full
15 Trench (FT) structure so that the active area is partially exposed, and can be opened in a
Partial Trench (PT) structure on the field oxide film so that an upper part of the gate line of
an adjacent transistor is exposed. An LIC fills in the opening part within the insulation layer,
and in such construction, the SOI element is designed by an FT-LIC structure where the LIC
is contacted with one portion of the active area of an optional transistor, and by a PT-LIC
20 structure where the LIC is contacted with an upper part of the gate line on the field oxide
film.